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(71)Applicant : TOSHIBA CORP

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(54) SEMICONDUCTOR ELEMENT

(57)Abstract:

PROBLEM TO BE SOLVED: To provide an MOS field effect transistor comprising a gate insulating film of high dielectric constant, while maintaining interface characteristics well maintained satisfactorily.

SOLUTION: An MOS field effect transistor comprises a semiconductor substrate (1), whose main component is Si and a gate insulating film (3) comprising a perovskite dielectrics, which is jointed directly on the semiconductor substrate for epitaxial growth. The lattice constant of the perovskite dielectrics is 3.84 \AA . The perovskite dielectrics preferably comprises a composition represented by $\text{Sr}_{1-x}\text{Ca}_x\text{Ti}_{1-y}\text{Zr}_y\text{O}_3-\text{d}$ ($0.8 \leq x \leq 1.0$, $0 \leq y \leq 0.5$, while (d) represents oxygen deficiency and $0 \leq d \leq 0.1$).

